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# Biotechnology Notes

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**Biotechnology Notes**, a compilation of agency activities, news events, and upcoming meetings, is prepared for members of the U.S. Department of Agriculture's (USDA) Committee on Biotechnology in Agriculture (CBA) by USDA's Office of Agricultural Biotechnology (OAB).

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## INSIDE USDA

### BIOTECH OFFICE SPONSORS USDA-INDUSTRY TECHNOLOGY EXCHANGE

USDA's Office of Agricultural Biotechnology (OAB) sponsored and coordinated a two-day science briefing with senior research executives from the DowElanco Corp., an agribusiness firm located in Indianapolis, IN. The purpose of the meeting was to discuss areas of mutual interest that hold promise for future commercialization initiatives under the Technology Transfer Act of 1986.

Experts from USDA's Cooperative State Research Service (CSRS), the Forest Service, and the Agricultural Research Service (ARS) discussed selective areas of research, including the biocontrol of plant diseases and nematodes, biopolymer research, lipid aspects of membrane function, aquaculture research, sustainable agriculture, risk assessment research, the biotechnology and technology transfer programs, and alternative agricultural research and commercialization. Officials from the Animal and Plant Health Inspection Service (APHIS) and the Food Safety and Inspection Service briefed the DowElanco delegation on regulatory matters.

Topics related to bioremediation and food science research were covered by experts invited from the Environmental Protection Agency and the Food and Drug Administration (FDA).

DowElanco is interested in pursuing research related to the plant sciences which could lead to cooperative research and development agreements (CRADA's). USDA is a leader in fostering CRADA's, having signed almost 300 since 1986, or about one CRADA for every eight scientists on staff. USDA scientists have also received 86 patents for their scientific discoveries. To learn more about USDA's technology transfer or CRADA programs, call William Tallent, Assistant Administrator, ARS, at 202-720-3963.

## STREAMLINING THE PERMIT SYSTEM

USDA's APHIS has proposed a new, speedier system for reviewing field tests of genetically modified plants in which researchers would simply notify the government of their intentions and certify that they will abide by published standards and administrative procedures. Under the existing system, scientists must apply for a permit and wait up to four months for a decision.

According to Ann Veneman, USDA Deputy Secretary of Agriculture, the proposed system will not only reduce approval time but also cut costs by 90 percent, encourage biotechnology innovations, and focus USDA regulatory resources on more complex permit applications.

In addition to the notification system, APHIS has proposed a petition process in which certain transgenic plants, after completing field tests, would no longer require USDA regulatory oversight. The public is invited to comment on both of these proposals, which will be published in the November 6 *Federal Register*. For more details, please contact John Payne, APHIS/BBEP Deputy Director, at 301-436-7602.

## USDA SEEKING RESEARCH PROPOSALS

USDA's CSRS is now accepting applications for the National Competitive Research Initiative Grants Program for agricultural, forestry, and related environmental sciences. A few of the areas of research include food safety, water quality, soils/micro-organisms, animal molecular genetics and gene mapping, and technology assessment. Deadlines for applications fall between January and March 1993. For details call CSRS at 202-401-5048.

## GETTING A LINE ON AQUATIC RESEARCH

Scientists are now developing a set of research performance standards that can be used voluntarily by researchers using biotechnology to develop improved aquatic species. The standards will provide a framework for determining when and how to contain genetically modified fish and shellfish.

The performance standards project is spearheaded by a team of experts on the Working Group on Aquatic Biotechnology and Environmental Safety. The Working Group reports to USDA's Agricultural Biotechnology Research Advisory Committee. It held its first meeting October 15 in Minneapolis, MN, chaired by Ann Kapuscinski, Associate Professor of Fisheries at the University of Minnesota.



Kapuscinski said the standards will be tailored to biotechnology research using freshwater and marine fish, crustaceans (lobster, crab, shrimp), and mollusks (snails, clams, oysters, scallops). She also said the Working Group along with about 30 other experts will meet in Minneapolis August 18-20, 1993 to review and refine the draft standards. The public is invited to attend. To learn more about this project, call Maryln Cordle, OAB, at 703-235-1510.

## **NBIAP PROGRAM TO EXPAND**

USDA's National Biological Impact Assessment Program (NBIAP) will add to its areas of responsibility, according to a just-released five-year strategic plan. Additional activities include development of a national biological monitoring database system and a software program to help researchers draft field test termination reports. The Program plans to design model systems to facilitate the transfer of technology. Program officials also plan to examine methods for better communicating program accomplishments to the public. To receive a copy of the strategic plan, call Kathy Best at 202-401-4892.

## **TAKING THE SQUEEZE OFF TOMATOES**

On October 16, USDA's APHIS announced that it would no longer regulate the growing of Calgene Inc.'s "Flavr Savr" tomato, a new product designed to have a longer shelf life than other tomatoes. This means the company can grow descendants of previously field-tested "Flavr Savr" tomatoes on a large, commercial scale without first applying for a permit from APHIS. Sales, however, cannot begin until the FDA has completed its safety reviews.

According to Terry Medley, Director of the Biotechnology, Biologics, and Environmental Protection Division of APHIS, the decision to exempt the tomato from further USDA oversight came after APHIS completed an extensive analysis of the scientific data and reviewed public comments to a proposal published in the *Federal Register*. In addition, he said agency experts studied the scientific literature and reviewed the opinions of various experts from outside the agency. Anyone wishing to obtain a copy of the final ruling, along with Calgene's petition, may call Kay Peterson, APHIS, at 301-436-7601.

## NEWS AROUND THE NATION (AND THE WORLD)

### POLICY BOARD ACCEPTS REPORT

The National Biotechnology Policy Board met October 9 at the National Institutes of Health (NIH), Bethesda, MD to discuss and vote on a draft report on capital formation in the biotechnology industry and regulation barriers to commercialization. Those present voted unanimously to accept the report with a few minor changes.

Several themes run throughout the report: 1) Regulations should provide net social benefits; 2) Effective regulation must educate the public; 3) Government efforts to judge what consumers need are not likely to work; and 4) Policy makers provide incentives for capital formation through certain changes in the tax code and patenting process. The report also says agricultural applications of biotechnology " do not appear to be reaching their full potential."

The National Biotechnology Policy Board was formed in response to a request from the Senate Committee on Appropriations. Its mission is to review and appraise both Government programs and non-confidential privately funded biotechnology activities. The Board was charged with submitting policy recommendations in the form of a report through the Director/NIH and/or the Secretary of Health and Human Services to the President and Congress. For more information about the draft report or the Policy Board, please call Nelson Wivel at NIH at 301-496-9838.

### FLAX: A NEW CHALLENGE FOR AN OLD CROP

Flax is believed to be one of the world's oldest domesticated crops judging from remnants found in Stone Age dwellings in Switzerland. It is well known that ancient Egyptians used the long fibers to make linen clothing, and that the linseed oil extracted from the seed was used to embalm the dead. Today, flax production is quite limited, mainly because of problems with insects, diseases, weeds, and a slow growth cycle. Farmers, however, are taking a second look at this crop, hoping to use it as a substitute for the overproduction of food crops. Others see the real value of flax in its short fibers which are currently produced as a by-product from the long textile fibers.

According to a recent article in the Italian publication *Agro Food Industry Hi-Tech*, some of the alternative outlets for these short fibers include its use in building materials, special papers, and automotive clutch and break linings. The quick drying linseed oil,



which contains lots of unsaturated fatty acids, is well suited as a base for quick-drying paints and in linoleum.

To help overcome production problems, researchers experimented with somaclonal variation and in vitro selection, but with little success. There has been some progress in both the United States and in Europe with genetic mapping, and field tests of herbicide-resistant linseed have shown various degrees of resistance. But more work needs to be done, especially in understanding the role of genes in fiber production.

To learn more about the challenge of improving flax, write to G. Marshall, Plant Science Department, Scottish Agricultural College, Auchincruive, AYR, KA6 5HW, United Kingdom.

## **BIOTECH RESEARCH WORKSHOP HELD**

The U.S.-EC Task Force on Biotechnology Research sponsored a joint workshop on biotechnology and genetic resources in Airlie, VA, October 21-22. Ten invited experts from European Commission member states and the United States addressed topics on application of biotechnology to screening organisms for useful properties, managing taxonomic and generic data, and applying biotechnology to improving the conservation and use of animal genetic resources. The participants formulated recommendations for follow-up activities to be sponsored by the Task Force.

## **BIOTECHNOLOGY DOES WELL IN SURVEY**

In an informal survey conducted by the Institute of Food Technologists (IFT), 70 percent of the people interviewed said they have a favorable view of biotechnology applied to food. They also said government funding for biotechnology research should be increased and that they want more information about the uses of biotechnology. Forty-six percent said they had "some confidence" in the governments' ability to keep foods safe. Consumers were interviewed in Colorado, Nebraska, New York, Ohio, and Pennsylvania.

The IFT is comprised of 25,000 members and is headquartered in Chicago, IL. For more details about the organization or the survey, call Chuck Wixom at 313-782-8424.

## **GAO REPORT ON BGH**

At the request of Congress, the General Accounting Office (GAO) evaluated the thoroughness of the FDA's review of bovine growth hormone (BGH), a genetically engineered product designed to

increase milk production. FDA approved BGH for research purposes only. In its report, the GAO concluded that FDA followed all of the critical standards used to evaluate BGH. Concerning indirect human food safety, which was not a critical guideline in the FDA study, the GAO said BGH does increase the incidence of mastitis in cows and that the condition could lead to greater use of antibiotics, which in turn might raise the level of antibiotics found in milk and beef.

The GAO recommended that FDA examine these indirect effects and study the degree to which antibiotics must be used to treat cows with mastitis and the incremental effects of BGH on the nation's milk and beef supply. GAO also advised that FDA temporarily stop marketing food products from BGH-treated animals until the research is completed and study the feasibility of labeling products treated with BGH.

To order a copy of the report, published August 1992, either call 202-275-6241 or write to U.S. General Accounting Office, P.O. Box 6015, Gaithersburg, MD 20877.

## **BIOTECH EDUCATION WORLD-WIDE**

The Organization for Economic Cooperation and Development (OECD) is now collecting data from member countries concerning their efforts to inform/educate the public about biotechnology. An analysis of the information will be submitted to the members of the Group of National Experts (GNE) on Safety and Regulation in Biotechnology at their next meeting in December. At that time, OECD will discuss what type of program to pursue.

## **NEW NEWSLETTER ON RICE**

The first issue of *Rice Genome* is now off press. It is a product of the Rice Genome Research Program which began October 1, 1991. The program is managed by the National Institute of Agrobiological Resources and the Society for Techno-Innovation of Agriculture, Forestry and Fisheries in Tsukuba City, Japan. The Institute's main research goal is to develop genetic linkage maps and physical maps of the rice genome. The newsletter is free of charge. To be placed on the mailing list, send your name and address to Ilkka Havukkala, Editorial Office of Rice Genome, National Institute of Agrobiological Resources, 2-1-2, Kannondai, Tsukuba, Ibaraki 305, Japan. The Fax number is +81-298-38-7468.



## NEW FRONTIERS IN CORN MAPPING

Three Iowa State University scientists are working to increase the resolution of genetic mapping in corn to better identify and isolate critical genes that have important agronomic traits such as those that determine yield. These traits are determined not by one gene but by groups of genes, each contributing a small portion to the overall output. The technique being used is called high resolution physical mapping. The researchers hope that this technique and others will lead to improved genetic manipulation of these traits.

## NEW PUBLICATIONS

■ *Food Safety Assessment*. Edited by J. Finley, S. Robinson, and D. Armstrong. Published by the American Chemical Society. 1992. To order call 1-800-227-5558.

■ *Analytical Biotechnology: Capillary Electrophoresis and Chromatography*. Edited by C. Horvath and J. Nikelly. Published by the American Chemical Society. 1990. To order call 1-800-227-5558.

■ *Harnessing Biotechnology for the 21st Century*. Edited by M. Lakisch and A. Bose. Published by the American Chemical Society. 1992. To order call 1-800-227-5558.

■ "Federally Funded Genome Research: Science and Technology Issues." Proceedings of a public meeting held May 21, 1992, under the sponsorship of the Genome Patenting Working Group. To receive a copy call 615-576-7393 or write to Sandra Beaulieu, Oak Ridge Associated Universities, P.O. Box 117, 200 Badger Ave., Oak Ridge, TN 37831-0117.

■ "A Study of Attitudes and Concerns of Genetic Engineering Scientists in Western Europe," by Isaac Rabino, in *Biotech Forum Europe*, Vol. 9, No. 10, October 1992.

■ *Sharing Responsibilities*. The 1991 Annual Report of the International Rice Research Institute. To receive a copy write to the Information Center, IRRI, P.O. Box 933, 1099 Manila, Philippines.

■ "Minutes of USDA's Agricultural Biotechnology Research Advisory Committee," which met March 11-13, 1992. To receive a free copy, call OAB at 703-235-4419; Fax: 703-235-4429.

## UPCOMING MEETINGS

Nov. 30-Dec. 2: "Potential Ecological and Nontarget Effects of Transgenic Plant Gene Products on Agriculture, Silviculture, and Natural Ecosystems." College Park, MD. This symposium is organized by the Center for Public Issues in Biotechnology of the Maryland Biotechnology Institute. It is co-sponsored by the U.S. Environmental Protection Agency, AgCanada, and the Joyce Foundation. Contact Maury Levin at 301-405-1056 or Ms. Chris Aggour at 301-405-1268; Fax: 301-405-9091.

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Dec. 6-9: International Symposium on Soil Decontamination Using Biological Processes. Frankfurt, Germany. Sponsored by the German Federal Ministry of Research and Technology, the Commission of the European Communities, and the U.S. Environmental Protection Agency. For details send a fax to (0)69/7564-201.

Dec. 14-16: Workshop on Control of Gene Expression in Yeast. Madrid, Spain. Call 34-1-435-4240; Fax: 34-1-576-3420.

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Jan. 17-22: The 1993 Miami Bio/Technology Winter Symposium: Advances in Gene Technology: Protein Engineering and Beyond. Miami, FL. Call 1-800-642-4363; Fax: 305-324-5665.

Jan. 24-27: BIOEAST '93. Washington, DC. Call 301-762-2957.

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